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Abstract

Aim: The knowledge level and approach of physicians in Turkey to obstructive sleep apnea syndrome (OSAS) is unknown. The aim of this study is to evaluate the knowledge level and attitudes of physicians from various branches to OSAS.

Materials and Methods: In this cross-sectional analytical study, Obstructive Sleep Apnea Knowledge and Attitude (OSAKA) questionnaire was performed in order to measure knowledge levels and attitudes to OSAS. SPSS 22 package program was used for statistical analysis of data, p-value <0.05 was considered significant.

Results: Four hundred forty-four physicians (16 from fundamental sciences, 295 from internal branches, 99 from surgical branches and 34 general practitioners) participated in the study. The mean knowledge score was 11.41 ± 3.05 (0-18). The knowledge score of physicians aged 30 years and younger was significantly higher than those aged 31 years and older ($p < 0.001$). There was a negative correlation between knowledge score and age of doctors ($r_s = -0.214$, $p < 0.001$). The level of knowledge of pulmonologists and ENT specialists was higher compared to physicians of other branches ($p < 0.05$). No significant difference was detected between the knowledge scores of academicians and non-academicians ($p > 0.05$). There was no correlation between knowledge scores and academic degrees ($r_s = -0.072$, $p = 0.188$). It was observed that the knowledge level of physicians whose professional experience was 4 years or less was higher than that of those whose professional experience was 5 years or more ($p = 0.001$). A negative correlation was also detected between knowledge scores and professional experience ($r_s = -0.193$, $p < 0.001$).

Discussion: It was determined that physicians' level of knowledge about OSAS was not sufficient and they felt insufficient about the management of OSAS patients. It would be appropriate to raise awareness of OSAS among practicing physicians within the scope of vocational training as well as in medical faculties and institutions providing specialist training.

Keywords

Obstructive sleep apnea; Knowledge; Attitudes; Physician; Questionnaire; OSAKA

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Introduction

“Obstructive Sleep Apnea Syndrome” (OSAS) is the most severe form of sleep disorders with the highest prevalence in the community. OSAS is a syndrome characterized by recurrent partial or complete collapse of the upper respiratory tract during sleep [1]. If OSAS is not treated, it can lead to cardiovascular system diseases such as hypertension, heart failure, stroke, arrhythmia and cognitive disorders [2-4]. In a longitudinal study involving more than 10,000 participants, OSAS has been shown to be an independent risk factor for sudden cardiac death [5]. It has been reported that it causes serious loss of life and property by increasing the risk of traffic accidents and the rate of fatal accidents by causing daytime sleepiness [6,7].

OSAS is observed in approximately 2-4% of American adults [8,9]. In a meta-analysis examining 24 studies, the prevalence of OSAS ranged from 9% to 38%. The prevalence has been shown to increase with age and is more common in men and obese people. In recent years, the incidence of OSAS has increased along with obesity [10].

Although the prevalence of OSAS is so high and it causes serious morbidity and mortality, it is often not diagnosed and/or treated. Young et al. reported that 82% of men and 93% of women with sleep apnea were undiagnosed. It has been reported in the conducted studies that the rate of referral of individuals at risk to higher levels for further examination is low [11-13]. The low level of knowledge and awareness of health workers in this regard may be an important factor. Since OSAS patients may apply to different clinics with very different complaints, the knowledge and awareness of physicians in all branches are of great importance for the early diagnosis and treatment of patients at risk. The aim of this study is to evaluate the knowledge levels and attitudes of physicians from different branches to OSAS.

Material and Methods

Our study was planned as a descriptive, cross-sectional study. Four hundred forty-four physicians working in Konya Training and Research Hospital, Necmettin Erbakan University Meram Medical Faculty Hospital, Selçuk University Medical Faculty Hospital and other health institutions in Konya city center were included in the study. No financial incentive was offered to complete the survey. Participants' information such as age, gender, academic degree, post-graduation professional year and field of expertise were recorded. OSAKA (Obstructive Sleep Apnea Knowledge and Attitudes Questionnaire) questionnaire was applied in order to measure OSAS knowledge level and attitudes. OSAKA is a validated and reliable questionnaire used in various studies worldwide [14]. This questionnaire includes 18 knowledge level questions about the epidemiology, pathophysiology, symptoms, diagnosis and treatment of OSAS. The answers comprise of “right”, “wrong” and “do not know” options. The option “do not know” was regarded as the wrong answer. The five attitude questions in the second part are of the Likert type (Likert scale: 1 = not important ... 5 = extremely important) and assess the importance of identifying patients with OSAS, with the first two assessing the importance of OSAS as a clinical disorder. The remaining three questions assess the self-confidence of doctors for the diagnosis and

treatment of OSAS. The specialties of the participants were gathered under 8 titles which are evaluated under fundamental medical sciences: biochemistry, medical genetics, microbiology, and pathology. Under internal medicine sciences are emergency medicine, family medicine, dermatology, internal medicine, physical therapy and rehabilitation, pediatrics, psychiatry, public health, infectious diseases, cardiology, neurology, nuclear medicine, and radiology. Under surgical sciences are anesthesia, pediatric surgery, general surgery, thoracic surgery, ophthalmology, cardiovascular surgery, gynecology and obstetrics, neurosurgery, orthopedics, plastic surgery, and urology departments. Pulmonology and otorhinolaryngology (ENT) departments where the diagnosis and treatment of OSAS disease is performed, were evaluated in separate categories. Practitioners were also evaluated in a separate category.

Statistical Analysis

The data obtained from the study were evaluated with SPSS 22.0 package program. Categorical variables were presented as frequency and percentage; while numerical variables were presented as mean \pm ss or (median, min, max). The Kolmogorov-Smirnov test was used to determine whether the continuous numerical variables fit the normal distribution. Variables were observed not to be consistent with normal distribution ($p < 0.05$). Therefore, non-parametric test methods were preferred in our studies. The Mann-Whitney U-analysis method was used for the comparison of two groups and the Kruskal-Wallis analysis method was used for multiple group comparisons. Paired comparisons were made. Spearman's Rho correlation analysis was used to determine the relationship between numerical variables. The Chi-Square analysis with Monte Carlo approach was used to determine the relationship between categorical variables and to determine independence status. A value of $p < 0.05$ was considered statistically significant in all analyses.

Results

Among the participants, 44.8% were female and 55.2% were male. The mean age was 33.4 ± 7.82 (23-59) years. The average post-graduation professional experience was 8.8 ± 7.87 (1-36) years. While 4.7% of the participants were academicians, 95.3% were working as specialists or general practitioners; 3.6% of physicians are practicing in basic sciences, 64.0% in internal sciences, 19.6% in surgical sciences, 2.5% in pulmonology, 2.7% in ENT and 7.7% as a general practitioner (Table 1).

The mean knowledge score was 11.41 ± 3.05 (0-18). The mean knowledge score of women was 11.50 ± 3.05 and the mean knowledge score of men was 11.33 ± 3.06 . There was no significant difference between the mean knowledge scores of men and women ($p > 0.05$). The mean number of correct answers of doctors aged 30 years and younger was significantly higher than those aged 31 years and older ($p < 0.001$). There was no significant difference between the mean number of correct answers between the academicians and non-academicians ($p > 0.05$). It was observed that the knowledge level of physicians with professional experience of 4 years or less was higher than that of doctors with 5 years of professional experience or more ($p = 0.001$). The knowledge level of pulmonology and ENT doctors was higher than that of doctors of other branches ($p < 0.05$) (Table 1).

Table 1. Distribution of the participants’ sociodemographic features and the relationship between knowledge level and sociodemographic data

	Number(%)	mean	p
Sex			
Female	199 (44,8)	11,50	0,549
Male	245 (55,2)	11,33	
Age			
23-30	219 (49,3)	11,99	0,000
31-59	225 (50,7)	10,84	
Profession year			
4 years and less	193 (43,5)	11,99	0,001
5 years and over	251 (56,5)	10,96	
Academics			
Academician	21 (4,72)	11,71	0,863
Not academician	423 (95,27)	11,39	
Profession			
Basic sciences	3,6 (16)	8,00	0,000
Internal sciences	46,2 (205)	11,73	
Surgical sciences	19,6 (87)	10,59	
Chest diseases	2,5 (11)	14,27	
Ear nose throat	2,7 (12)	13,91	
Pediatrics	9,5 (42)	11,16	
Psychiatry	8,3 (37)	11,83	
Practitioner	7,7 (34)	11,17	

Table 2. Correlations among attitude items and between attitudes and knowledge

	1	2	3	4	5	6
Importance of OSA as a clinical disorder	1,000					
Important to identify patients with OSA	0,726**	1,000				
Confident identifying at-risk patients	0,273**	0,273**	1,000			
Confident managing patients with OSA	0,227**	0,220**	0,637**	1,000		
Confident managing patients on CPAP	0,079	0,104*	0,354**	0,496**	1,000	
Overall knowledge score	0,233**	0,241**	0,404**	0,397**	0,130**	1,000

Abbreviations: OSA, obstructive sleep apnea; CPAP, continuous positive airway pressure. *p< 0.05 ** p<0.01

There was a negative correlation between the number of correct answers and the age of doctors ($r_s = -0.214$, $p < 0.001$). Similarly, there was a negative correlation between the number of correct answers and professional experience ($r_s = -0.193$, $p < 0.001$). There was no correlation between the number of correct answers and academic degrees of doctors ($r_s = -0.072$, $p = 0.188$).

The first two attitude questions evaluated the attitudes of doctors towards the importance of OSAS in clinical practice, and this score was quite high. It was observed that up to 95% of the physicians were concerned about OSAS. The scores of the remaining three questions related to confidence in the diagnosis and treatment of OSAS were low; only 30% of physicians found their knowledge sufficient to deal with OSAS.

No significant difference was observed between attitude scores and age, professional experience, and other characteristics of the participants. There was a positive correlation between attitude scores and knowledge level ($p < 0.05$) (Table 2).

Discussion

There are different studies in the literature that assess the level of knowledge and attitudes to sleep disorders or OSAS among physicians. However, most of them are performed between doctors of the single specialty area such as anesthesiologists and cardiologists or among newly graduated doctors [15-18]. Jokubauskas et al. conducted a study in which they surveyed dentists with a questionnaire they created [19]. In a study, a questionnaire was applied to medical students and physicians to measure the level of knowledge and attitude related to general sleep medicine [20]. There are also surveys conducted among primary care physicians that include questions about general sleep medicine [20-22]. Although Williams’ work is similar to ours, our study is the most extensive one in this field with 444 participants, involving all specialization groups including practitioners and academicians [23].

Similar to other studies, in our study, no difference was observed between gender and knowledge level [15-17, 23]. In our study, as in the first study in which OSAKA was developed, a negative correlation was found between age and professional year and knowledge level [14]. Similarly, Williams’ study showed that those with longer professional experience had lower levels of knowledge [23]. This may be due to the fact that the general medical knowledge of young physicians is up-to-date, and unused information of physicians who have been working in different fields for many years is forgotten. In Southwel’s and Wang’s studies, it was reported that there was no difference between age and professional year and level of knowledge [16,17]. This may be due to the fact that anesthesiologists and cardiologists encounter OSAS frequently in their daily practice and update their knowledge about OSAS. In addition, Wang’s study showed that those with a high professional title had a higher level of knowledge [16]. In our study, no significant difference was observed between academicians and non-academicians.

In our study, the average correct response rate of knowledge questions (63%) was similar to other studies conducted in recent years. The rate was found as 66% in a study of anesthetists, 62% in the study by Wang et al. and 60% in a study conducted in the primary care [15, 16].

In our study, it was seen that the level of knowledge of chest diseases and ENT specialists was higher compared to other fields. This result may be attributed to the fact that OSAS patients usually apply to the ENT or chest diseases department. While in Schotland’s study, the level of knowledge of internal medicine and family physicians was higher than that of pediatricians, no difference was observed in Williams’s study [14, 23].

OSAS remains a relatively poorly diagnosed condition in the general population. In addition, patients in primary care are not screened for OSAS, and comorbidities in high-risk patients fail to be identified [24]. In the studies performed, the rate of physicians referring patients for OSAS was found to be

below the required level. In the study conducted by Raymond in primary care physicians, the rate of referral for evaluation of OSAS according to the symptoms was very low [22]. In our study, 30% of the doctors weren't confident about identifying patients with OSAS risk, while 32% were undecided. Similarly, 32% of cardiologists reported that they were unsure about this [17]. In our study, similar to the literature, the level of knowledge of physicians about OSAS was found to be very low.

The findings of this study showed that the diagnosis and treatment of OSAS should be given more attention in medical faculties and institutions providing specialist education. We think that physicians working in different branches should update their knowledge about OSAS through both vocational retraining and personal efforts. This is very important for the early recognition of patients at risk for OSAS and prevention of comorbidities in primary care and different branches.

Scientific Responsibility Statement

The authors declare that they are responsible for the article's scientific content including study design, data collection, analysis and interpretation, writing, some of the main line, or all of the preparation and scientific review of the contents and approval of the final version of the article.

Animal and human rights statement

All procedures performed in this study were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards. No animal or human studies were carried out by the authors for this article.

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Conflict of interest

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References

1. Riha RL. Clinical assessment of the obstructive sleep apnoea/hypopnoea syndrome. *Thorax*. 2010;4(2):83–91.
2. Chami HA, Resnick HE, Quan SF, Gottlieb DJ. Association of incident cardiovascular disease with progression of sleep-disordered breathing. *Circulation*. 2011;123(12):1280–6.
3. Peppard PE, Young T, Palta M, Skatrud J. Prospective study of the Association between sleep-disordered breathing and hypertension. *N Engl J Med*. 2000;342(19):1378–84.
4. Wallace DM, Ramos AR, Rundek T. Sleep disorders and stroke. *Int J Stroke*. 2012;7(3):231–42.
5. Gami AS, Olson EJ, Shen WK, Wright RS, Ballman KV, Hodge DO, et al. Obstructive sleep apnea and the risk of sudden cardiac death: a longitudinal study of 10,701 adults. *J Am Coll Cardiol*. 2013;62(7):610–6.
6. Arita A, Sasanabe R, Hasegawa R, Nomura A, Hori R, Mano M, et al. Risk factors for automobile accidents caused by falling asleep while driving in obstructive sleep apnea syndrome. *Sleep Breath*. 2015;19(4):1229–34.
7. Connor J, Norton R, Ameratunga S, Robinson E, Civil I, Dunn R, et al. Driver sleepiness and risk of serious injury to car occupants: population-based case-control study. *BMJ*. 2002;324 (7346):1125.
8. Young T, Peppard PE, Gottlieb DJ. Epidemiology of obstructive sleep apnea: a population health perspective. *Am J Respir Crit Care Med*. 2002;165(9):1217–39.
9. Tishler PV, Larkin EK, Schluchter MD, Redline S. Incidence of sleep-disordered breathing in an urban adult population: the relative importance of risk factors in the development of sleep-disordered breathing. *JAMA*. 2003;289(17):2230–7.
10. Senaratna CV, Perret JL, Lodge CJ, Lowe AJ, Campbell BE, Matheson MC, et al. Prevalence of obstructive sleep apnea in the general population: A systematic review. *Sleep Med Rev*. 2017;34:70–81.
11. Young T, Evans L, Finn L, Palta M. Estimation of the clinically diagnosed proportion of sleep apnea syndrome in middle-aged men and women. *Sleep*. 1997;20(9):705–6.
12. Haponik E, Frye AW, Richards B, Wymer A, Hinds A, Pearce K, et al. Sleep history is neglected diagnostic information. Challenges for primary care physicians. *J Gen Intern Med*. 1996;11(12):759–61.
13. Kramer N, Cook TE, Carlisle CC, Corwin RW, Millman RP. The role of the primary care physician in recognizing obstructive sleep apnea. *Arch Intern Med*. 1999;159(9):965–8.
14. Schotland HM, Jeffe DB. Development of the obstructive sleep apnea knowledge and attitudes (OSAKA) questionnaire. *Sleep Med*. 2003;4(5):443–50.
15. Corso R M, Sorbello M, Bucciolini M, Carretta E, Nanni O, Piraccini E, et al.

Survey of knowledge and attitudes about obstructive sleep apnoea among Italian anaesthetists. Turk J Anaesthesiol Reanim. 2017;45(3):146–52.

16. Wang CL, Li XZ, Cai XL, Pan XL, Min J. Anesthesiologist's knowledge and attitudes about obstructive sleep apnea: a survey study. *Sleep Breath*. 2012;16:41–6.

17. Southwell C, Moallem M, Auckley D. Cardiologist's knowledge and attitudes about obstructive sleep apnea: a survey study. *Sleep Breath*. 2008;12:295–302.

18. Chérrez-Ojeda I, Calderón JC, Fernández García A, Jeffe DB, Santoro I, Vanegas E, et al. Obstructive sleep apnea knowledge and attitudes among recent medical graduates training in Ecuador. *Multidiscip Respir Med*. 2018;21:13–5.

19. Jokubauskas L, Pileičikienė G, Žekonis G, Baltrušaitytė A. Lithuanian dentists' knowledge, attitudes, and clinical practices regarding obstructive sleep apnea: a nationwide cross-sectional study. *Cranio*. 2019; 37(4):238–45.

20. Kovacic Z, Marendic M, Soljic M, Pecotic R, Kardum G, Dogas Z. Knowledge and attitude regarding sleep medicine of medical students and physicians in Split. *Croatia Croat Med J*. 2002;43(1):71–4.

21. Papp KK, Penrod CE, Strohl KP. Knowledge and attitudes of primary care physicians towards sleep and sleep disorders. *Sleep Breath*. 2002;6(3):103–9.

22. Rosen RC, Zozula R, Jahn EG, Carson JL. Low rates of recognition of sleep disorders in primary care: comparison of a community-based versus clinical academic setting. *Sleep Med*. 2001;2(1):47–55.

23. Williams NJ, Nunes JV, Zizi F, Okuyemi K, Airhihenbuwa CO, Ogedegbe G, et al. Factors associated with referrals for obstructive sleep apnea evaluation among community physicians. *J Clin Sleep Med*. 2015;11(1): 23–6.

24. Heffner J, Rozenfeld Y, Kai M, Stephens E, Brown L. Prevalence of diagnosed sleep apnea among type 2 diabetics in primary care. *Chest*. 2012;141(6):1414–21.

25. Chung SA, Jairam S, Hussain MR, Shapiro CM. Knowledge of sleep apnea in a sample grouping of primary care physicians. *Sleep Breath*. 2001;5:115–21.

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